What is claimed is:

1 A data bus control method for an artificial satellite load, which controls data communication between a plurality of communication terminals and a data bus control apparatus, characterized in that a periodical processing time band during which communication is periodically conducted between the plurality of communication terminals and the data bus control apparatus and a non-periodical processing time band during which communication is non-periodically conducted between said plurality of communication terminals and said data bus control apparatus are independently provided, and data transmission is conducted at a variable length packet unit during said non-periodical processing time band.

2 A data bus control method for an artificial satellite load recited in claim 1, characterized in that collection of communication requests (polling) during the non-periodical processing time band from the plurality of communication terminal is time-divisionally conducted.

3 A data bus control method for an artificial satellite load recited in claim 1, characterized in that communication terminals for conducting communication with priority during each non-periodical processing time band are previously

determined and a schedule is made out, and based on said schedule, processing of a communication request is conducted.

4 A data bus control method for an artificial satellite load recited in claim 2, characterized in that communication terminals for conducting communication with priority during each non-periodical processing time band are previously determined and a schedule is made out, and based on said schedule, processing of a communication request is conducted.

5 A data bus control method for an artificial satellite load recited in claim 3, characterized in that, in case that communication requests from the communication terminals for conducting communication with priority during the non-periodical processing time band do not exist, said non-periodical time band is allocated to communication with other communication terminals.

6 A data bus control method for an artificial satellite load recited in any of claim 1, characterized in that the communication requests from the communication terminals, which are conducted during the non-periodical processing time band, are averaged by a time period during which transmission of a plurality of packets is conducted.

7   A data bus control method for an artificial satellite load,
which controls data communication between a plurality of
communication terminals and a data bus control apparatus,
characterized in that the method comprises steps of:

5   independently providing a periodical processing time band
during which communication is periodically conducted between
the plurality of communication terminals and the data bus
control apparatus and a non-periodical processing time band
during which communication is non-periodically conducted

10   between said plurality of communication terminals and said
data bus control apparatus;

allocating an allowable band in said non-periodical
processing time band to each communication terminal;

time-dividing collection of communication requests

15   (polling) to each communication terminal during said non-
periodical processing time band, and previously determining
communication terminals for conducting communication with
priority during each non-periodical processing time band and
making out a schedule;

20   conducting collection of communication requests (polling)
to communication terminals for conducting communication with
priority during said non-periodical processing time band,
based on said schedule;

as a result of the collection of the communication requests,

25   in case that the communication requests from the communication

terminals exist, allowing transmission if a data content to be transmitted, which is averaged by a time period during which transmission of a plurality of packets is conducted, is below or equal to said allocated allowable band, and suppressing

5 transmission if it is above or equal to said allocated allowable band; and

transmitting one variable length packet from the communication terminal in one non-periodical processing time band during which transmission is allowed.

10

8 A data bus control method for an artificial satellite load recited in claim 7, characterized in that determination of transmission allowance is determined based on an equation below,

15

$$L(n) + L(n+1) + ... + L(n+m) \leq BWalloc \times TmP$$

where BWalloc is the allocated allowable band,
L(n) is the n-th packet length, and
20 Tmp is a time period until the communication terminal can set the (n+m)-th packet transmission request since it sets the n-th packet transmission request.

9 A data bus control method for an artificial satellite load
25 recited in claim 7, further comprises a step of allocating said

non-periodical time band to communication with other
communication terminals in case that communication requests
from the communication terminals for conducting communication
with priority during said non-periodical processing time band
5   do not exist.

10   A data bus control method for an artificial satellite load
recited in claim 8, further comprises a step of allocating said
non-periodical time band to communication with other
10   communication terminals in case that communication requests
from the communication terminals for conducting communication
with priority during said non-periodical processing time band
do not exist.

15   11   A data bus control system for an artificial satellite load,
which controls data communication between a plurality of
communication terminals and a data bus control apparatus,
       characterized in that a periodical processing time band
during which communication is periodically conducted between
20   the plurality of communication terminals and the data bus
control apparatus and a non-periodical processing time band
during which communication is non-periodically conducted
between said plurality of communication terminals and said
data bus control apparatus are independently provided, and the
25   system comprises:

a schedule table in which numbers of communication terminals

for conducting communication with priority during each

non-periodical processing time period are described;

means for conducting collection of communication requests

5   (polling) to the communication terminals having the numbers

which are described in said schedule table;

control means for, in case that the communication requests

from said communication terminals exist, allowing

transmission if a data content to be transmitted, which is

10   averaged by a time period during which transmission of a

plurality of packets is conducted, is below or equal to an

allowable band allocated to said communication terminals, and

suppressing transmission if it is above or equal to said

allocated allowable band; and

15   means for allowing transmission of one variable length packet

during a non-periodical processing time band of said

communication terminal in case that the transmission is

allowed.

20   **12**   A data bus control system for an artificial satellite load

recited in claim 11, characterized in that said control means

conducts determination based on an equation below,

$$L(n) + L(n + 1) + ... + L(n + m) \le BWalloc \times TmP$$

25   where BWalloc is the allocated allowable band,

L(n) is the n-th packet length, and

Tmp is a time period until the communication terminal can set

the (n+m)-th packet transmission request since it sets the n-th

packet transmission request.

13   A data bus control system for an artificial satellite load

recited in claim 11, further comprises means for allocating

said non-periodical time band to communication with other

communication terminals in case that communication requests

from the communication terminals for conducting communication

with priority during said non-periodical processing time band

do not exist.